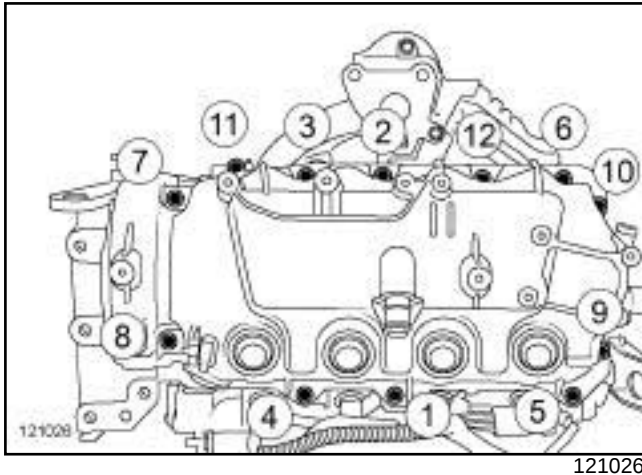


TOP AND FRONT OF ENGINE

Rocker cover: Removal - Refitting

11A

D4F, and 784



☐ Refit:

- the rocker cover fitted with a new seal,
- the rocker cover bolts.

☐ Pretighten to torque and in order the **rocker cover bolts (initial torque) (5 Nm)**.

☐ Torque tighten in order the **rocker cover bolts (13 Nm)**.

III - FINAL OPERATION.

☐ Remove:

- the ignition coil (see **17A, Ignition, Coils: Removal - Refitting**, page **17A-2**),
- the filler neck,
- the filler neck bolt,
- the heat shield,
- the heat shield bolts.

☐ Torque tighten the **heat shield bolts (8 Nm)**.

☐ Connect the oil vapour rebreathing circuit union.

☐ Clip the upstream oxygen sensor wiring harness into place.

☐ Refit the intercooler air inlet pipe.

☐ Clip the intercooler air inlet pipe onto the turbocharger.

☐ Refit the intercooler air inlet pipe bolt on the intake distributor.

☐ Refit the engine cover.

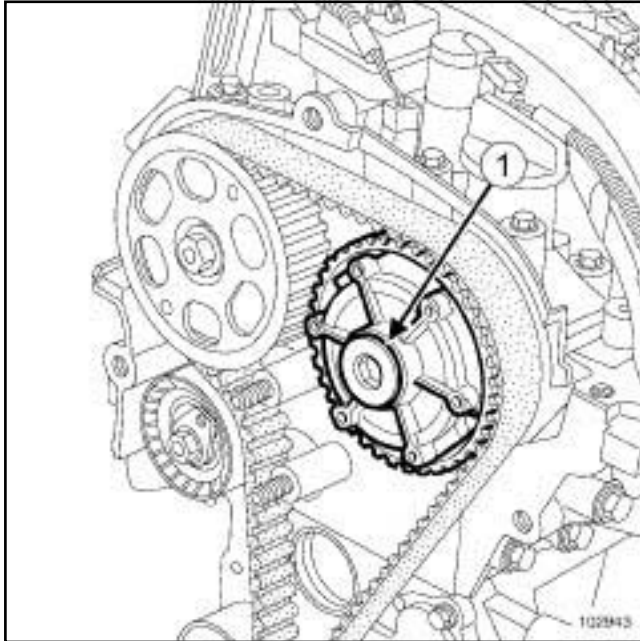
☐ Connect the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).

K4M

I - SPECIAL NOTES

Its role is to modify the valve timing.

To improve cylinder filling at all engine speeds, the engine is fitted with an inlet camshaft dephaser (1).



102943

Dephasing at the moment when the inlet valves close optimises filling according to engine speed. Torque at midrange engine speed and output at high engine speed are improved.

Leaving the inlet valves open for longer at high engine speed allows the mixture to be continually admitted thanks to its high speed.

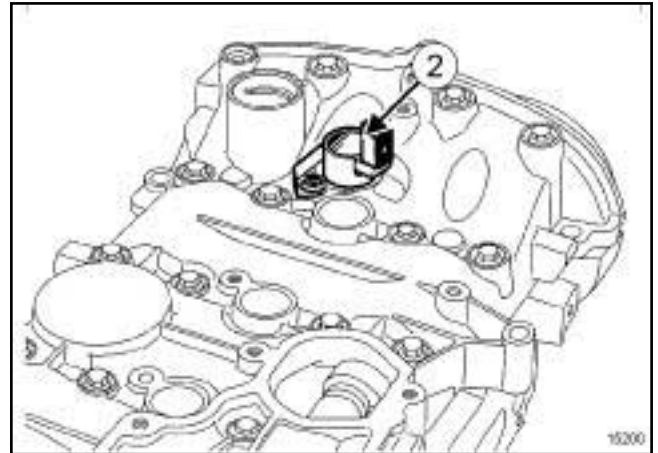
However, at lower engine speeds the gases do not have a high level of inertia. It is therefore preferable to close the inlet valves earlier to avoid incorrect filling and a loss of torque due to the reflux of fresh gases.

The higher the engine speed, the later the inlet valves must be closed.

II - OPERATION AND PROGRAMMING

The oil is supplied to the dephaser by a solenoid valve (2) located on the cylinder head.

The supply by a variable OCR signal (amplitude **12 V**, frequency **250 Hz**) enables oil to be distributed to the mechanism and the dephaser angle to be adjusted.

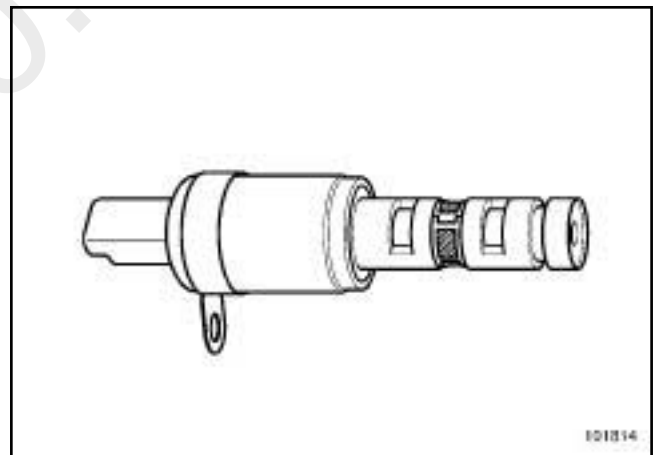


15200

The operation of the camshaft dephaser varies continuously.

The computer supplies the solenoid valve (2) with a variable opening cyclic ratio proportional to the desired dephasing.

Dephasing is varied continuously from **0 to 43°** of the crankshaft.



101814

The camshaft dephaser control solenoid valve is controlled if the following conditions are met:

- no speed sensor fault
- no camshaft position sensor fault
- no injection system faults,
- after the engine has started,
- outside idling speed and no load,
- threshold of mapping according to load and engine speed reached,
- coolant temperature between **10 and 120°C**,
- engine oil temperature too high.

TOP AND FRONT OF ENGINE

Camshaft dephaser: Function

11A

K4M

Defect modes:

- dephaser returns to initial position,
- zero dephasing.

WARNING

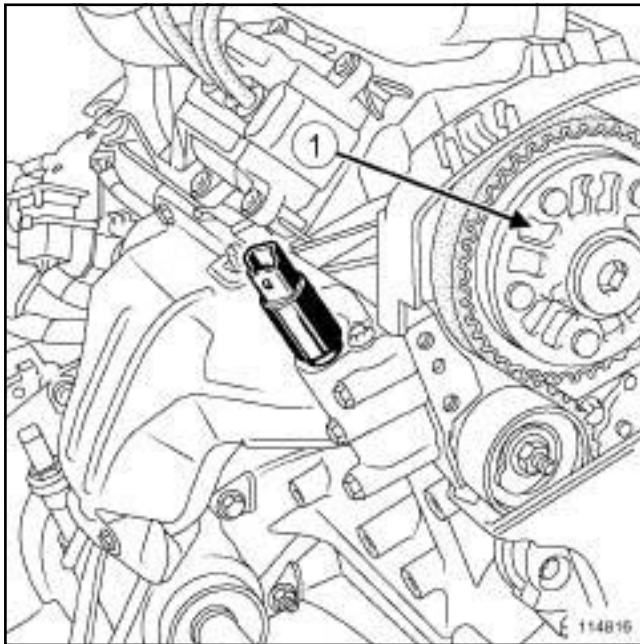
A solenoid valve jammed open causes an unstable idle speed, manifold pressure which is too high at idle speed and significant engine operating noise.

D4F, and 764

I - SPECIAL NOTES

Its role is to modify the valve timing.

To improve cylinder filling at all engine speeds, the engine is fitted with a camshaft dephaser (1) .



114816

Dephasing at the moment when the inlet valves close optimises filling according to engine speed. Torque at midrange engine speed and output at high engine speed are improved.

Leaving the inlet valves open for longer at high engine speed allows the mixture to be continually admitted thanks to its high speed.

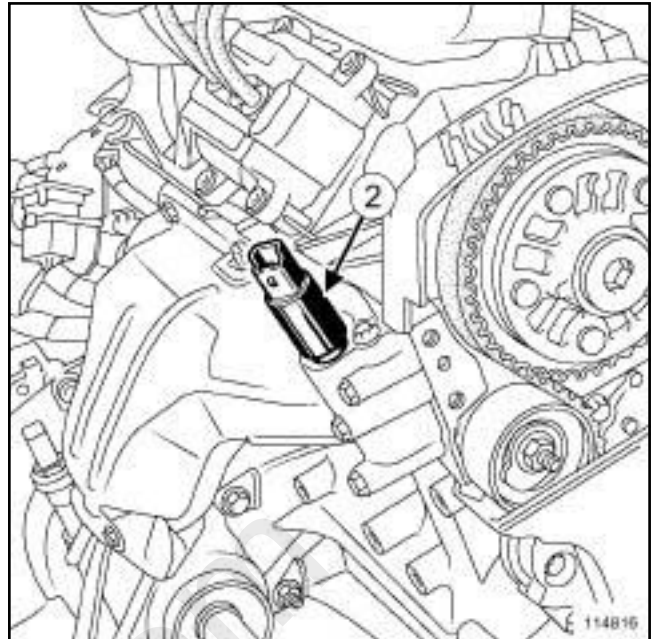
However, at lower engine speeds the gases do not have a high level of inertia. It is therefore preferable to close the inlet valves earlier to avoid incorrect filling and a loss of torque due to the reflux of fresh gases.

The higher the engine speed, the later the inlet valves must be closed.

II - OPERATION AND PROGRAMMING

The oil is supplied to the dephaser by a solenoid valve (2) located on the cylinder head.

The supply by a variable OCR signal (amplitude **12 V**, frequency **250 Hz**) enables oil to be distributed to the mechanism and the dephaser angle to be adjusted.

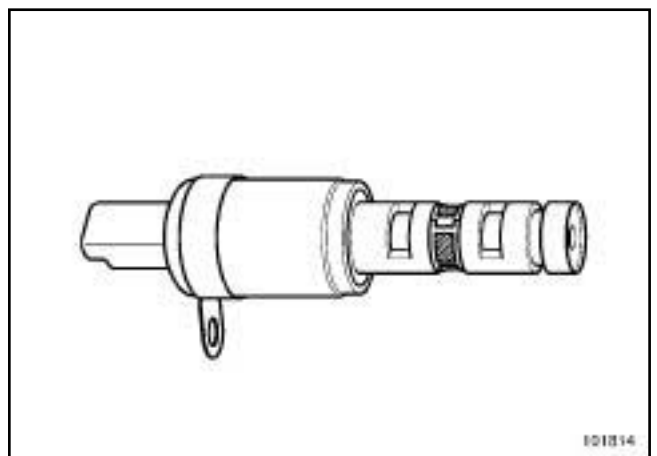


114816

The operation of the camshaft dephaser varies continuously.

The computer supplies the solenoid valve (2) with a variable opening cyclic ratio proportional to the desired dephasing.

Dephasing is varied continuously from **0 to 43°** of the crankshaft.



101814

The camshaft dephaser control solenoid valve is controlled if the following conditions are met:

- no speed sensor fault
- no camshaft position sensor fault
- no injection system faults,
- after the engine has started,
- outside idling speed and no load,

TOP AND FRONT OF ENGINE

Camshaft dephaser: Function

11A

D4F, and 764

- threshold of mapping according to load and engine speed reached,
- coolant temperature between **10 and 120°C**,
- engine oil temperature too high.

Defect modes:

- dephaser returns to initial position,
- zero dephasing.

Note:

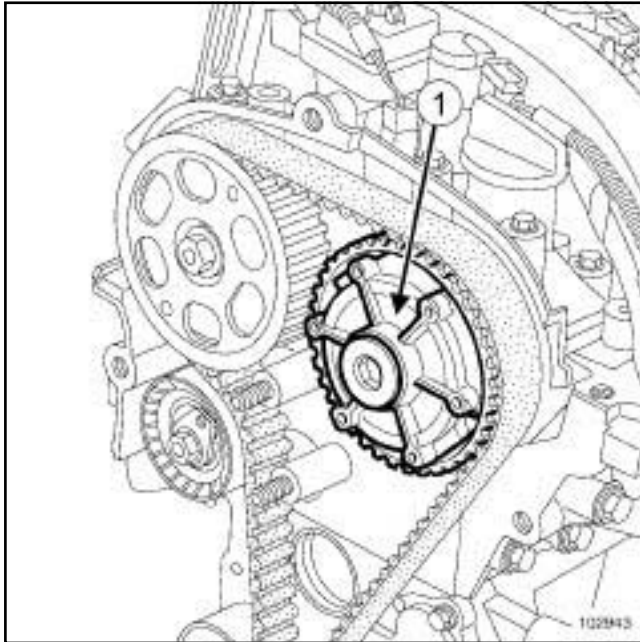
A solenoid valve jammed in the open position causes:

- rough idle speed,
- high pressure in the intake distributor,
- significant engine operating noises.

K4M

I - SPECIAL NOTES

Its role is to modify the valve timing.



102943

To improve cylinder filling at all engine speeds, the engine is fitted with an inlet camshaft dephaser (1) .

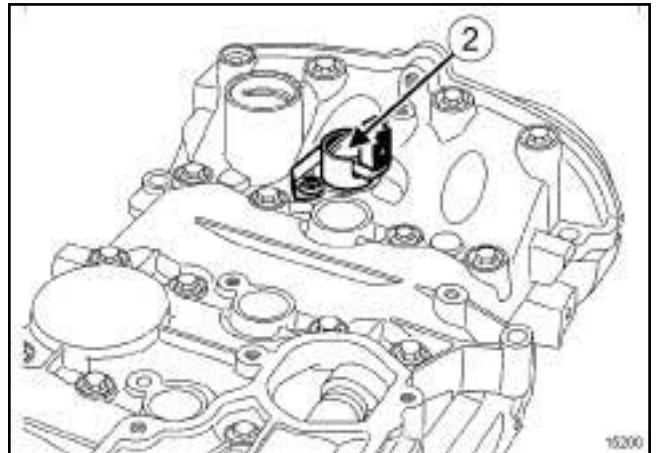
Dephasing at the moment when the inlet valves close optimises filling according to engine speed. Midrange torque and output are improved.

Leaving the inlet valves open for longer at high engine speed allows the mixture to be continually admitted thanks to its high speed.

However, at lower engine speeds the gas has low inertia. It is therefore preferable to close the inlet valves earlier to avoid incorrect filling and a loss of torque due to the reflux of cold gases.

The higher the engine speed, the later the inlet valves must be closed.

II - OPERATION AND PROGRAMMING



15200

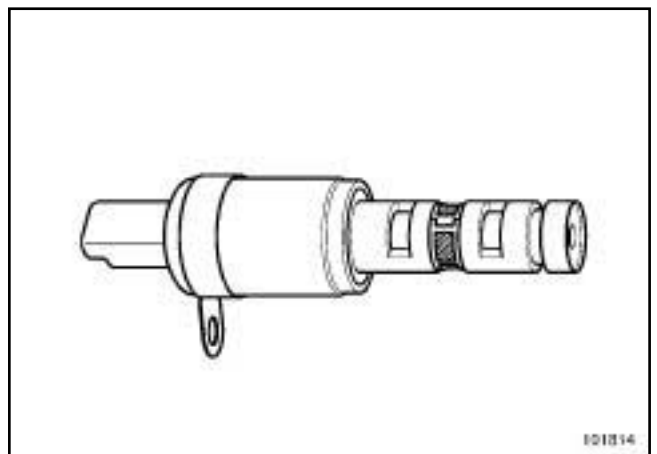
The oil is supplied to the dephaser by a solenoid valve (2) located on the cylinder head.

The supply by a variable OCR signal (amplitude **12 V**, frequency **250 Hz**) enables oil to be distributed to the mechanism and the dephaser angle to be adjusted.

The operation of the camshaft dephaser varies continuously.

The computer supplies the solenoid valve (2) with a variable opening cyclic ratio proportional to the desired dephasing.

Dephasing is varied continuously from **0 to 43°** of the crankshaft.



101814

The camshaft dephaser control solenoid valve is controlled if the following conditions are met:

- no speed sensor fault
- no camshaft position sensor fault
- no injection system faults,
- after the engine has started,
- outside idling speed and no load,

TOP AND FRONT OF ENGINE

Camshaft dephaser: Function

11A

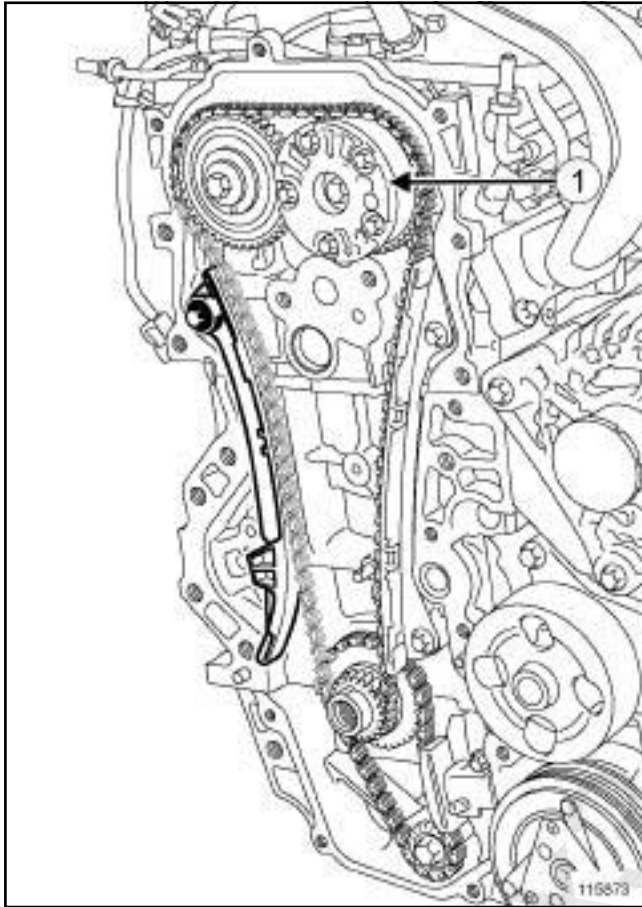
K4M

- threshold of mapping according to load and engine speed reached,
- coolant temperature between **10 and 120°C**,

M4R

I - SPECIAL NOTES

The camshaft dephaser modifies the valve timing.



115873

To improve cylinder filling at all engine speeds, the engine is fitted with an inlet camshaft dephaser (1) .

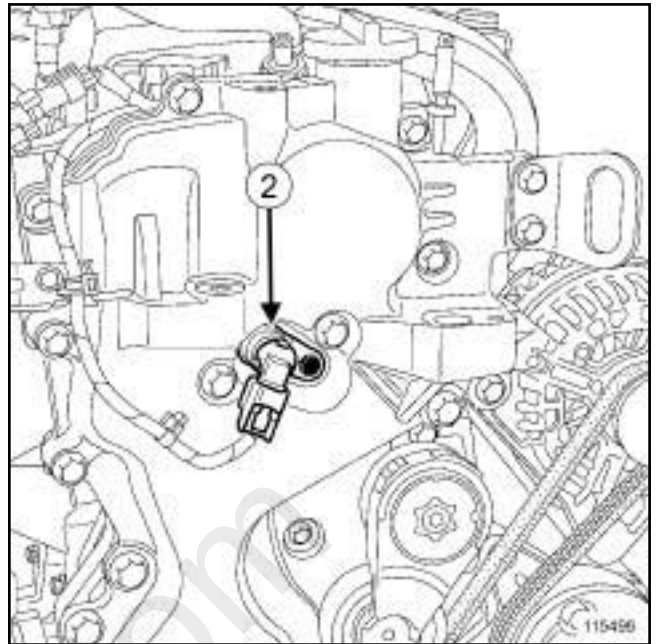
Dephasing at the moment when the inlet valves close optimises filling according to engine speed. Torque at midrange engine speed and output at high engine speed are improved.

Leaving the inlet valves open for longer at high engine speed allows the mixture to be continually admitted thanks to its high speed.

However, at lower engine speeds the gases do not have a high level of inertia. It is therefore preferable to close the inlet valves earlier to avoid incorrect filling and a loss of torque due to the reflux of fresh gases.

The higher the engine speed, the later the inlet valves must be closed.

II - OPERATION AND PROGRAMMING



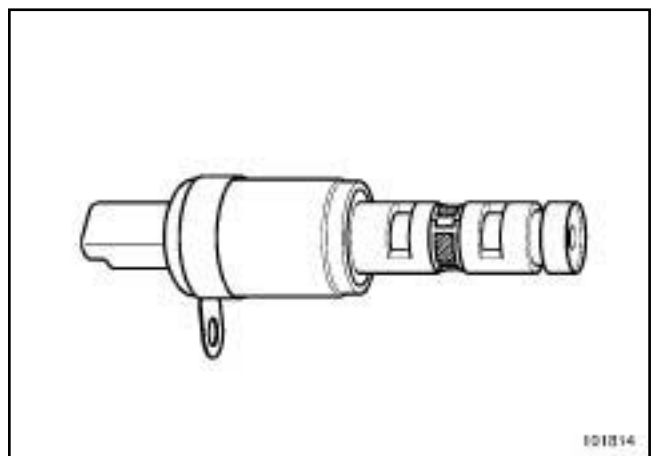
115496

The oil is supplied to the dephaser by a solenoid valve (2) located on the timing cover.

Supply by a variable opening cyclic ratio signal enables oil to be distributed to the mechanism and the dephaser angle to be adjusted.

The operation of the camshaft dephaser varies continuously.

The computer supplies the solenoid valve with a variable opening cyclic ratio proportional to the desired dephasing.



101814

The camshaft dephaser control solenoid valve is controlled if the following conditions are met:

- no engine speed sensor fault
- no camshaft position sensor fault
- no injection system faults,

TOP AND FRONT OF ENGINE

Camshaft dephaser: Function

11A

M4R

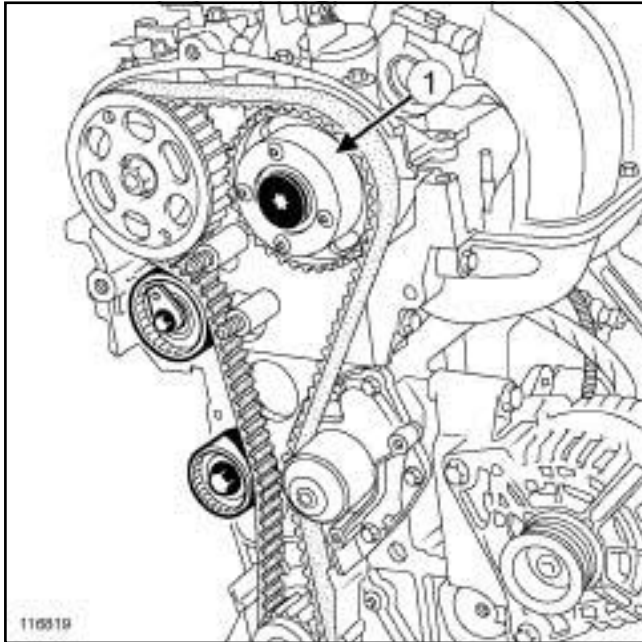
- after the engine has started,
- outside idling speed and no load,
- threshold of mapping according to load and engine speed reached,
- threshold of mapping according to the coolant temperature.

mcx30.com

F4R

I - SPECIAL NOTES

The camshaft dephaser modifies the valve timing.



116819

To improve cylinder filling at all engine speeds, the engine is fitted with an inlet camshaft dephaser (1).

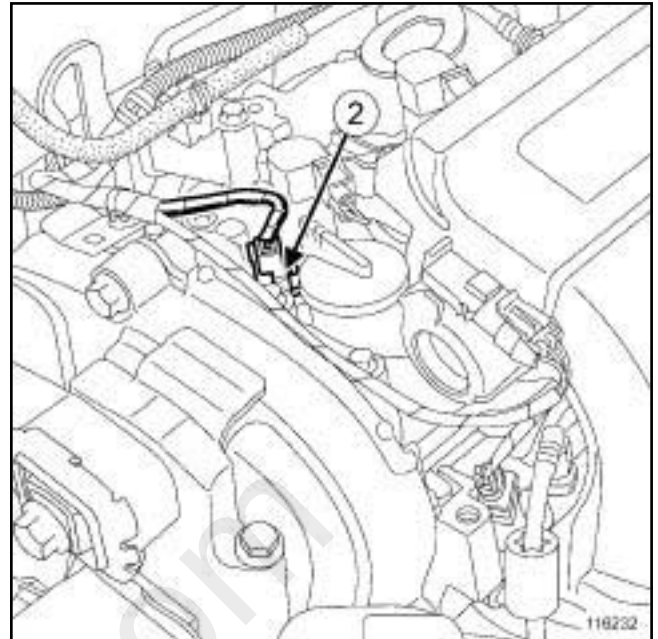
Dephasing at the moment when the inlet valves close optimises filling according to engine speed. Torque at midrange engine speed and output at high engine speed are improved.

Leaving the inlet valves open for longer at high engine speed allows the mixture to be continually admitted thanks to its high speed.

However, at lower engine speeds the gases do not have a high level of inertia. It is therefore preferable to close the inlet valves earlier to avoid incorrect filling and a loss of torque due to the reflux of fresh gases.

The higher the engine speed, the later the inlet valves must be closed.

II - OPERATION AND PROGRAMMING



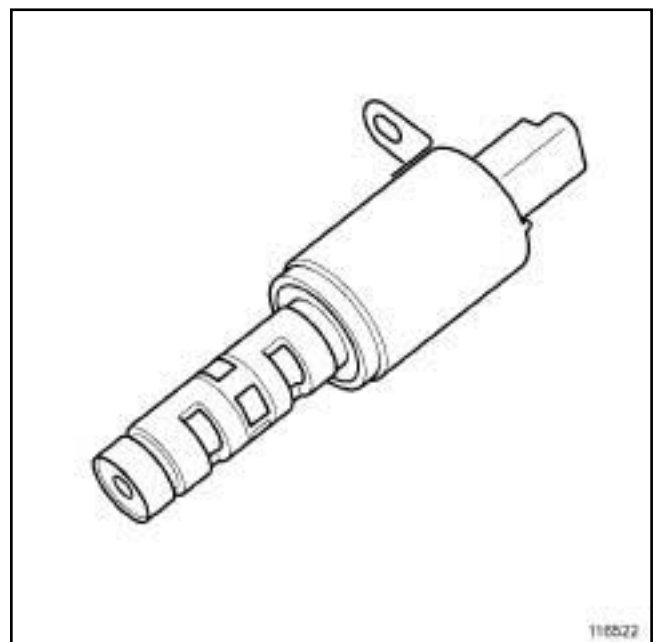
116232

The oil is supplied to the dephaser by a solenoid valve (2) located on the timing cover.

Supply by a variable opening cyclic ratio signal enables oil to be distributed to the mechanism and the dephaser angle to be adjusted.

The operation of the camshaft dephaser varies continuously.

The computer supplies the solenoid valve with a variable opening cyclic ratio proportional to the desired dephasing.



116522

116522